The Senior Mentor Program at the University of South Carolina School of Medicine: An Innovative Geriatric Longitudinal Curriculum

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ABSTRACT. This paper describes development, implementation, and evaluation strategies of a longitudinal geriatric curriculum, the Senior Mentor Program (SMP). The rationale for exposing undergraduate medical students to healthy, community-dwelling older adults is to use the relationship and activities as vehicles for improving knowledge of aging and providing students experience with aging as a stage and process. The
University of South Carolina School of Medicine’s major aim in geriatrics is to prepare students to become skilled physicians in care of older adults. The SMP is embedded into the curriculum. The program introduced medical students to healthy older adults, presented selected health care issues in this population, integrated material early in the curriculum, acquainted students with longitudinal patient care, and introduced students to older adults’ living arrangements. The SMP is an effective means of infusing geriatric content into the medical school curriculum and positively affects mentors’ and students’ attitudes toward each other. This has implications for medical and professional schools, such as nursing, social work, and physical therapy.

**KEYWORDS.** Undergraduate medical education, geriatrics, nontraditional settings, senior mentors, longitudinal curriculum

**INTRODUCTION AND BACKGROUND**

In 2000, the American Association of Medical Colleges (AAMC)/John A. Hartford Foundation awarded funding to the University of South Carolina School of Medicine (USCSM) to integrate geriatrics curricular content across the four years of undergraduate medical education (Cleary, Lesky, Schultz, & Smith, 2001). The USCSM Senior Mentor Program, currently in its sixth year, was a core part of the strategy to integrate more geriatric content into the curriculum. Beginning in 2000 (class of 2004), every first-year student was assigned a senior mentor early in the second semester. Established in 1974 as a community-based medical school, USCSM has a current overall enrollment of approximately 320 students.

The rationale for exposing medical students to healthy, community-dwelling older adults through a longitudinal experience is to use the relationship and the activities in which the students and mentors engage as vehicles for improving knowledge of aging and providing students direct experience with aging as a stage and process. In the first years of the program, the initiative focused to a degree on anticipated positive changes in students’ attitudes toward caring for older adults in much the same manner as published accounts of geriatric curriculum interven-
tions at other medical schools (Adleman, Fields, & Jutagir, 1992; Cleary et al., 2001; Intrieri, Kelly, Brown, & Castilla, 1993; Ten Haken, Woolliscroft, Smith, Wolf, & Calhoun, 1995). Although student responses in focus groups and debriefing sessions indicated that student attitudes toward their mentors were positive, the focus on student attitudes and attitude change became a less central objective as the program matured. The evaluation data and program information routinely collected indicates that this is a program which contributes significantly to the aim to have graduates prepared to become skilled physicians in caring for older adults.

**INNOVATIVE EDUCATIONAL METHOD**

**Student Component**

The Senior Mentor Program is a curriculum requirement for all four years of the students’ undergraduate medical school education. The SMP has been integrated into the multidisciplinary, two-year Introduction to Clinical Medicine (ICM) course and the clinical clerkships. Students, mostly in pairs, are randomly assigned an individual (or couple) who is a healthy, community-dwelling senior to follow until completion of medical school. Beginning early in the second semester of their first year, students meet with their senior mentors and continue these visits throughout the remaining four years. On average, seniors and students meet two to three times per semester and complete assignments integrating classroom and clerkship curricular content. Many student-mentor relationships develop as active social contacts beyond the curriculum requirements (dinners, meeting family members, attending weddings, and other events).

**Senior Mentor Component**

In the fall of 2000, faculty members from the USCSM Division of Geriatrics invited patients from the Palmetto Health Senior Primary Care Practice to become volunteer “Senior Mentors.” The practice is the academic clinical practice for most faculty members in the Division of Geriatrics. This practice is composed of predominantly well-educated, middle-class older adults living in the community. Interested invitees
attended an orientation session outlining program requirements. The geriatricians were the initial participant screeners, as they knew their patients’ physical limitations as well as their mental conditions. Having the geriatricians involved gave the program an added dimension, as the students not only had access to their senior mentors, but also to their mentors’ physicians.

In order to participate, mentors must be 65 years of age or older, community dwelling, and living in greater Columbia, be cognitively intact, agree to be a senior mentor for one to two medical students throughout their four years of schooling, and agree to meet with the students up to six times per year. Further, they must have access to transportation to meet with the students or faculty for orientation and debriefing sessions, and agree to share information about themselves, and give feedback and personal comments to students.

As of 2005, as many as 241 older adults have participated or are participating in the program. Geriatrics faculty recruited the class of 2004 mentors. Although the majority of mentors for recent classes have been referred from that group, recruitment of mentors has broadened. Other means of recruitment now include mentors’ referrals of friends, referrals from other faculty physicians, and self-referrals from older adults who responded to media coverage of the program. A screening mechanism has been implemented for selecting potential new volunteer mentors. As the program has expanded, a new source of feedback for program staff includes mentors’ personal physicians in the community.

Mentor attrition has been relatively low, with only 26 of 241 mentors leaving. The causes have been death, poor health (with dementia the most common problem), and departure from the area. No mentor has left the program due to dissatisfaction, and no mentor has requested reassignment to different students. Mentor recruitment has not been a problem; in fact, for the past two years there has been a volunteer waiting list.

**Description of the Curriculum**

Using a multidisciplinary approach, the academic team developed 13 geriatric education modules for students and their mentors. Designed with the American Geriatric Society (AGS) competencies as a framework (Eleazer et al., 2000), the modules provide experiential learning opportunities that reinforce concepts and skills taught in the classroom and clerkships. By the end of four years, students are able to demonstrate the AGS-recommended skill of performing a comprehensive fall
risk assessment for an older adult. Such an assessment integrates multiple components of previous assignments, such as determining orthostatic blood pressure and pulse, taking a medical history, performing a physical examination, assessing daily activities (ADLs and IADLs), assessing cognitive status and mood (clock draw tests, mental status exams, depression screening), and assessing specific motor function (timed up and go). Other AGS recommended competencies which the students are familiar with upon completion include prevention (designing behavior-change plans), nutritional assessment (with input from the faculty nutritionist), environmental assessment for home safety, medication assessment (with input from clinical pharmacologists), the concept of advance care planning, and utilization of life review as a clinical communication tool (patient-centered interviewing).

Students meet with their mentors outside of class, usually at mentors’ homes. At each visit, students take and record their mentors’ blood pressure, complete a specific assignment or module, and provide a narrative focusing on how each interaction has affected their perceptions of aging and older adults. During these sessions, students not only work on their interviewing and communication skills, they also form personal relationships with their mentors by discussing their opinions on aging and good patient care.

Students initially meet their senior mentors at an off-campus orientation luncheon and complete an icebreaker activity ”What’s Your Aging I.Q.?” (Lifelong Learning, 1991) and negotiate the time and location of their first meeting. In their first year, students meet their mentors three times and complete assignments addressing physiology of aging, medical history taking, mental status examination, and psychosocial issues (including intimacy and friendship) involved in aging.

During the second year, students meet six times with their mentors, completing modules that include development of a behavioral modification plan, assessment of the mentors’ diets, performance of a home environmental safety assessment, conduct of a physical exam, and evaluation of the mentors’ medications. These modules involve interaction with USCSM nutrition, pharmacology, and geriatrics faculty. Students can discuss such concerns as dietary or medication issues with the specialists regarding their mentors. Additionally, the students have direct access to most of the mentors’ primary-care physicians for consultation as needed. Assignments during both years one and two are integrated into the ICM course and complement material introduced in that course as well as the physiology and pharmacology courses.
During years three and four, students must complete modules that include discussing advance care planning and death and dying issues, performing a life review, conducting a geriatric fall risk assessment, and accompanying their mentors to scheduled doctor appointments. Geriatric content for these modules is taught in the third year during internal medicine, family medicine, and psychiatry clerkship rotations. In addition, during these two years, students and mentors are encouraged to meet socially.

The culmination of the SMP takes place at the end of year four, with students honoring their mentors in a graduation ceremony. During the ceremony, students are encouraged to present their mentors with a commemorative piece, (e.g., life review summary, a poem, artwork, photos, etc.) to thank them for their four years of volunteer mentoring. “Graduation” is also historically a time at which mentors seek to re-enroll as mentors for the incoming first-year class.

The SMP is only one aspect of the geriatric curriculum at USC School of Medicine. Many other AGS core competencies are covered in other areas of the curriculum (Eleazer, Egbert, Caskey, Egbert, & Hornung, 1994; Eleazer, Giles, & Wieland, 1998; Roberts, Richeson, Thornhill, & Eleazer, 2004).

**Program Administration, Staffing, and Evaluation**

The program, now in its sixth year, has been implemented with minimal administrative burden or cost. The program operates smoothly under a half-time coordinator with supplemental faculty supervision. The SMP is housed in both the Division of Geriatrics (Department of Internal Medicine) and in the USCSM Office of Curricular Affairs. Working in conjunction with both course and clerkship directors, the SMP has been integrated into the multidisciplinary, two-year ICM course and the clinical clerkships.

Program evaluation is conducted with students and mentors utilizing multiple qualitative and quantitative methods and measures. Each method is described below. Assessment of students’ attitude change, knowledge gain, skills competency, and program satisfaction is accomplished through student assignments and papers; Objective Structured Clinical Examinations; debriefing sessions and focus groups with students; student attitude and knowledge surveys (Maxwell & Sullivan, 1980; Palmore, 1988; Reuben et al., 1998; Rosencranz & McNevin, 1969); and the AAMC Medical School Graduation Questionnaire (Association
of American Medical Colleges, 2004). Mentor satisfaction is assessed through focus groups and periodic debriefing sessions.

**Student Assignments/Papers**

The faculty assesses students’ knowledge, skills, and attitudes by reviewing completed assignments. The assignments include a student analysis of the skills or tasks the students performed and attitudes covering such questions as “how has this session affected your personal view of aging and of older adults,” and an assessment of the students’ perspectives through such questions as “What new information did you gain from this session with your senior mentor?” Attitudinal changes are reflected in this student response: “I realize that the elderly are just older people, not a different kind of person. I have acquired even more understanding of the aged that I’m afraid would have taken me many more years of life experience without this opportunity.” Another stated: “I believe I have learned valuable lessons in patient interaction that I would have never acquired in the classroom or clinics.”

After the physiology of aging assignment, one student wrote: “This session with my senior mentor has reconfirmed that people age well, or not, based on their outlook and level of activity . . . [the information from the session] taught me that ‘old age’ is actually a great age to be . . . the ‘golden years’ are a vital and fun-filled period.” Following the behavior-change session, one student indicated: “This senior mentor assignment succinctly illustrated the difficult task facing physicians attempting to persuade patients to change behaviors . . . self-change is difficult for everyone, regardless of age.” Thus, the student assignment and papers not only document completion of an assignment; they may also reflect students’ attitude change, knowledge gain, skills competency, and program satisfaction.

**Objective Structured Clinical Examinations (OSCEs)**

Another means of assessing the students’ knowledge gain and skills competency is through OSCEs. After students complete the Geriatric Fall Risk Assessment module in the third year internal medicine clerkship, performance is evaluated using a trained graduate social work student as the role player. The student must demonstrate knowledge of the components of a comprehensive geriatric fall risk assessment and actually recall all aspects of the assessment. Additionally, the following geriatric OSCEs utilizing standardized patients have been implemented in
the third year: dementia (neuropsychiatry), perimenopausal issues (gynecology), urinary incontinence (gynecology), confusion (internal medicine), and non-specific presentation of disease (surgery).

**Debriefing Sessions with Students**

Debriefing is another means of determining student satisfaction with the program. The sessions are generally held in the pre-clinical years to explore students’ comfort levels with the program and identify where changes need to be made or successes are occurring. These are informal sessions with the entire class and program faculty and are structured into the ICM classroom curriculum for approximately one hour per semester. Plans are being made to include a final debriefing session for students at the end of the fourth year.

**Focus Groups**

Between 2002 and 2005, as many as 15 focus groups were conducted to explore both students’ and mentors’ perceptions of the SMP. The most extensive analysis focused on the first full cohort to complete the program, that is, the students and mentors for the graduating class of 2004. The methods and some of the results of the focus groups have been reported elsewhere (Corwin et al., 2006; Roberts et al., 2002). Thematic comparisons across groups indicated a shared view that relationships between students and seniors were rewarding. Seniors and students alike noted that their involvement in the mentor program has helped students change their impressions and previously held stereotypes about aging and older people:

Some of the surveys we took at the beginning of the course would outline the myths and what was actually true in terms of what older people did or didn’t do. You put down what you thought was the correct answer and even found out what statistics say the correct answer is, but when you start talking to your senior mentor you found out that, in fact, a lot of it is true (i.e., the myths are false).

I found this important: I realized you can’t stereotype a patient just because of, you know, what kind of illness they may have or how old they might be.

Some students mentioned that, as a result of the program, they became aware that aging is a personal, individualized process:
[Aging is] really an individual process and you have to get a feel for the whole patient’s lifestyle and, you know, understand why you need to take that social history, get a family history and get to know their lifestyle in addition to just their symptoms.

Students, however, expressed concern and discomfort when the professional and social lines were blurred. For instance, when the assignment called for performing a physical examination on mentors with whom they had formed personal and intimate relationships, many students indicated their feelings of friendship caused a “huge stress.” Not all the students or seniors, however, viewed this conflict negatively. Some participants indicated they thought it was an important part of the relationship and good preparation for potential practice in communities where patients and physicians might have social contacts with each other.

In the student focus groups, some students indicated the mentor program provided them with a “break from classes” and an opportunity to “get out of the classroom.” Many mentioned the sequence of assignments within the curriculum. Overall, students felt the assignments “mirrored” what they were learning in the classroom.

Focus groups continue to be an ongoing mechanism for evaluating and monitoring the program. The information gained is used for program improvement.

**Student Attitude and Knowledge Surveys**

Beginning with the class of 2004, all students have had their knowledge and attitudes about aging assessed prior to the start of classes in their first year and again at the beginning of classes in years two and three. Initially students completed three self-administered surveys including the Rosencrantz Aging Semantic Differential (ASD) survey (Rosencranz & McNevin, 1969), the Maxwell-Sullivan scales for measuring attitudes toward aging (Maxwell & Sullivan, 1980), and the Palmore Facts on Aging Quiz for measuring knowledge (Palmore, 1988) and one year later the UCLA Geriatrics Knowledge and Attitudes Survey (Reuben et al., 1998) was added. Each of these measures was re-administered just prior to the students’ graduation.

Data were analyzed using descriptive statistics and paired t-tests. In the analysis of the results of the class of 2004 in year one and again at the beginning of year three, few differences were found in knowledge. However, a significant overall improvement in ASD attitudes from year
one to year three was noted, \( t(43) = 2.631, p < .05 \). The results of the Maxwell-Sullivan Attitude Scale and the UCLA Geriatrics Attitude Survey, however, indicated serious reliability and validity problems (Stewart, Roberts, Eleazer, Boland, & Wieland, 2006). These problems prompted a faculty review of efforts to use existing measures of student attitudes and a decision to de-emphasize use of these measures in program evaluation. Therefore, program administration has relied upon student expression in focus groups, written work and debriefing sessions to conclude that student attitudes toward the program and older adults seem to be “positive.”

AAMC Medical School Graduation Questionnaire

A contrasting method of assessing coverage of undergraduate curriculum content is to turn to the views of graduating medical students themselves. Since 1978, the AAMC has administered its Graduate Questionnaire (GQ) (Association of American Medical Colleges, 2004) to graduating fourth year students. Eight questions deal specifically with geriatric content (see Table 1) (Eleazer, Wieland, Roberts, Richeson, &

**TABLE 1. Proportion in Percentages of Students Agreeing with Geriatrics Objectives in the AAMC Graduate Questionnaire, by Graduation Years**

<table>
<thead>
<tr>
<th>Graduate Questionnaire Questions</th>
<th>2002 USC Agreeing</th>
<th>2003 USC Agreeing</th>
<th>2004 USC Agreeing</th>
</tr>
</thead>
<tbody>
<tr>
<td>I learned about the health care needs of healthy older adults during my medical training.</td>
<td>85.7</td>
<td>90.4</td>
<td>98.5</td>
</tr>
<tr>
<td>I am well prepared to care for older adult patients in acute settings.</td>
<td>65.7</td>
<td>87.6</td>
<td>87.9</td>
</tr>
<tr>
<td>I am well prepared to care for older adult patients in ambulatory settings.</td>
<td>78.5</td>
<td>89.0</td>
<td>95.5</td>
</tr>
<tr>
<td>I am well prepared to care for older adult patients in long-term health care settings.</td>
<td>65.2</td>
<td>69.9</td>
<td>81.9</td>
</tr>
<tr>
<td>I was exposed to expert geriatric care by the attending faculty of my medical program.</td>
<td>74.3</td>
<td>86.3</td>
<td>90.9</td>
</tr>
<tr>
<td>Small group exercises were used to increase my knowledge of geriatrics.</td>
<td>54.2</td>
<td>61.6</td>
<td>92.4</td>
</tr>
<tr>
<td>Interdisciplinary approaches were used to increase my knowledge of geriatrics.</td>
<td>67.2</td>
<td>74.0</td>
<td>90.9</td>
</tr>
<tr>
<td>Mean Totals</td>
<td>69.5</td>
<td>79.2</td>
<td>91.7</td>
</tr>
</tbody>
</table>
Thornhill, 2006). USCSM collected agreement rates for these questions, along with information needed to estimate response rates for USCSM graduates (AAMC, Univ. of South Carolina School Report, 2004 and 2005). Agreement was defined as “Strongly agree” and “agree” responses on a five-point Likert scale ranging from “Strongly agree” to “Strongly disagree.”

In the SMP’s fifth year, approximately 380 students have been enrolled, and sixty-six 2004 graduates and sixty-five 2005 graduates have completed the Program. USCSM covered only 51% of American Geriatrics Society competencies before the SMP, but now covers 100%, with 63% met specifically through the Senior Mentor Program. Graduates reporting coverage of geriatrics throughout their four years of training rose from 66% in 2002 to 96% in 2004.

Debriefing Sessions with Mentors

Throughout all four years, program faculty also conduct separate debriefing sessions with the mentors. The sessions are designed to monitor program activities and to address the senior mentors’ questions and concerns. In addition, these sessions provide an informal forum for mentors to share experiences amongst themselves. A great deal of practical information and suggestions are offered by mentors in these sessions.

DISCUSSION AND IMPLICATIONS

Our findings indicate that the SMP has successfully infused geriatric content throughout the entire four year medical school curriculum, and helped to improve and/or maintain students’ positive orientation to older adults. The program will continue to be monitored for its impact on geriatric knowledge and skills competency in future classes, as the program has become a permanent part of the curriculum.

The SMP has allowed us to address many of the barriers identified by others to increasing content in aging-related materials (Eleazer, Egbert, Caskey, Egbert, & Hornung, 1994; Warshaw, Bragg, Shaull, & Lindsell, 2002). For example, the program has not increased the amount of classroom time; in fact, many topics previously covered in lecture format are now part of a student-mentor experience. Faculty time and overall costs, once the program was fully implemented, is fairly nominal when compared with other curriculum changes. Acceptance by the school’s curriculum committee, faculty, students, and mentors speaks to frequently
cited barriers to undergraduate training in geriatrics such as a packed curriculum, lack of training facilities, and access to appropriate patients.

The SMP has implications for replication in other medical schools as well as in other professional schools, such as public health, nursing, physical therapy, and social work. The program introduces medical students to a healthy elderly population, presents the health care challenges in this population, allows classroom material to be integrated into a clinical setting early in the curriculum, and provides for nontraditional training sites. Valuable personal and clinical experiences have been gained through this venture, and this program has brought the USCSM into the homes and hearts of 241 older adults to date.

REFERENCES


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